Nuclear in place density test data shall be expressed as a percentage of the maximum specific gravity determined for each day's production. The in place density of each patch shall be 92.0 to 97.0 percent.

The results of all nuclear density tests from each patch shall be averaged and compliance will be determined on the basis of each patch tested.

**505.04 MEASUREMENT AND PAYMENT.** The payment will be full compensation for saw cutting, milling, grinding, removal, disposal, trimming of the existing pavement, subgrade preparation, placing all materials including tack coat, steel plates, emergency filler, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

All steel plates and emergency filler after removal shall remain the property of the Contractor.

**505.04.01** Partial Depth Patching and Full Depth Patching will be measured and paid for at the Contract unit price per square yard or per ton as specified in the Contract Documents. The payment will be full compensation for furnishing, hauling, placing all material, additional removal of pavement above the aggregate base, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

**505.04.02** Removal of Unsuitable Material and Refill will be measured and paid for at the Contract unit price per cubic yard. The payment will also include excavation and disposal of unsuitable material, backfilling with aggregate, and compaction.

# SECTION 506 — GAP-GRADED HOT MIX ASPHALT

**506.01 DESCRIPTION.** This work shall consist of the placement of a gap-graded hot mix asphalt surface (GGHMA) as specified in the Contract Documents. GGHMA shall conform to Section 504, except as specified herein.

**506.02 MATERIALS.**

| | |
|---|---|
| Gap-Graded Hot Mix Asphalt | 904.05 |
| Production Plant | 915 |

## 506.03 CONSTRUCTION.

**506.03.01 Demonstration.** Before proceeding with the actual work, the Contractor shall demonstrate to the Engineer that a satisfactory mix can be produced, placed, and the compactive effort determined. A minimum of 100 tons of GGHMA shall be placed outside the project limits for the demonstration. A Material Transfer Vehicle may be used as part of the paving operations.

**506.03.02 Hauling Units.** Dry soap powder, as approved by the Engineer, may be used with the release agent specified in 915.02(f). Truck beds shall be raised to drain excess water before being loaded with GGHMA.

A light dusting of No. 10 aggregate coated with 1 percent asphalt may be used in lieu of the liquid release agent.

The time between plant mixing and shipment shall not exceed one hour (storage time may vary depending upon gradation, type of binder and/or stabilizer. Storage material shall consistently have results of no less quality than mixtures discharged directly into hauling vehicles). Each load shall be completely covered with a full tarp extending a minimum of 6 in. over each side of the truck body and securely fastened.

**506.03.03 Weather Restrictions.** Placement of GGHMA will be permitted only when the ambient and surface temperatures are at least 50 F.

**506.03.04 Material Transfer Vehicle (MTV).** When the Contractor elects to use an MTV for paving, the MTV shall be capable of performing additional mixing of the GGHMA and depositing the mixture into the paver at a uniform temperature and consistency. The MTV shall have a system to continuously mix the mixture prior to discharge into the paving equipment.

**506.03.05 Mix Temperature.** The minimum temperature of the mixture at the time of placement shall be established during the mix design procedure.

**506.03.06 Pavement Thickness.** The thickness of the pavement shall be as specified in the Contract Documents.

**506.03.07 Tack Coat.** Refer to 504.03.04 except that the resulting coating shall be residual asphalt applied at a rate of 0.03 to 0.05 gal/yd$^2$.

**506.03.08 Compaction.** Compaction shall be performed using a minimum of three static steel-wheeled rollers, each weighing 10 to

12 tons. The rollers shall follow the paver within 500 ft. Rolling shall start immediately after placement. In place density shall conform to 504.03.06, except that the density shall be 94 to 97 percent of maximum density. Sampling and testing shall be performed as specified in 504.03.10.

The rollers shall be equipped with a watering or soapy watering system that prevents material from sticking to the rollers.

Rollers shall not be used in a vibratory mode. Pneumatic wheeled rollers shall not be used on GGHMA. Roller speed shall be between 1.0 and 3.0 mph. Compaction shall be completed before the mix cools below 230 F.

**506.03.09 Control Strip.** A full lane width control strip having a minimum length of 500 ft shall be constructed on the finished grade prior to paving start up. The control strip will be used by the Engineer to evaluate the application of the tack coat and to determine the compactive effort. Density requirements are not waived.

**506.03.10 Pavement Profile.** Refer to the Pavement Surface Profile requirements specified in the Contract Documents.

**506.04 MEASUREMENT AND PAYMENT.** Hot Mix Asphalt Gap-Graded will be measured and paid for at the Contract unit price per ton, complete and in place. The payment will be full compensation for furnishing, hauling, preparing tack coat, placing all materials, material transfer vehicle, antistripping additive, tack coat, control strips, and for all material, labor, equipment, tools, setting of lines and guides where specified, and incidentals necessary to complete the work. The paid tonnage will be based on the combined bulk specific gravity of the aggregate (Gsb) mixture used. When the Gsb is within 2.70 – 2.80 the paid tonnage is the tonnage used; when outside this range use the following formula to determine the pay tonnage.

$$PT = T\ ((AC + (AGG \times 2.75/Gsb) + Y)/100)$$

where:

PT = Pay tonnage,

T = Actual tonnage weighed,

AC = Percent by weight of binder,

AGG = Percent by weight of total mixture of mineral aggregates,

Gsb = Calculated combined bulk specific gravity of various mineral aggregates used in mixture, and

Y = Percent by weight of fiber.

Material produced for the demonstration will not be paid for but the cost will be incidental to the item GGHMA.

**506.04.01 Price Adjustment.** Refer to 504.04 except as follows:

| DENSITY PRICE ADJUSTMENT | |
|---|---|
| **PERCENT OF MAXIMUM DENSITY, LOT AVERAGE** | **PAY FACTOR %** |
| Above 97.0 | 97 |
| 94.0 - 97.0 | 100 |
| 92.0 - 93.9 | 97 |
| 90.0 - 91.9 | 95 |
| Below 90.0 | 80 or Rejected at Engineer's Discretion |

Note: Any sublot below 89.0 percent will be cause for rejection of the entire lot at the Engineer's discretion.

# SECTION 507 — SLURRY SEAL

**507.01 DESCRIPTION.** This work shall consist of constructing a slurry seal course using a slurry seal (SS), or a latex modified slurry seal (LMSS) as specified in the Contract Documents or as directed by the Engineer.

## 507.02 MATERIALS.

| | |
|---|---|
| Mineral Filler | 901.01 |
| Water | 921.01 |
| Aggregate | 923.01 |
| Emulsified Asphalt | 923.03 |
| Latex Modified Emulsion | 923.04 |

## 507.03 CONSTRUCTION.

**507.03.01 Weather Restrictions.** The slurry seal shall only be placed when the air and surface temperatures are a minimum of 50 F, when it is not raining, and when the local weather forecast does not predict